Weekly Report for 05/25/2015

APS Renewal and Upgrade

• Attended MBA Radiation Physics meeting and reviewed B. Micklich's RadSynch15 presentation. (Jeff Dooling)

MCR Operations

Linac Operations

• Tried to realign the regen cavity with the original diode set; however saw no sign of lasing. (Jeff Dooling)

• Received HV Pockels Cell power supply from SLAC. (Jeff Dooling)

• Picked up NALCO cleaning solution NCCL 460-2567 from A. DiChiara (TRR-XSD). Technical staff from Schott North America believe this solution may be too aggressive for the LG-760 laser rods. (Jeff Dooling)

• Have therefore decided to remove the present pair of laser rods, extract samples of the surface material for testing, and re-install the rods removed and cleaned in 2013. (Jeff Dooling)

Procedures

• Advanced Photon Source Superconducting Undulator (SCU) Local Power Supply Shutdown (APS_1685077) (Randy Flood)

MCR Operations administrative/misc.

• Approved operators' time cards (Randy Flood)

• Approved vacation requests, set up coverage and updated the online schedule (Randy Flood)

• Approve CTLs, IT and Other work requests (Randy Flood)

APS Machine Studies

Storage Ring Studies

• Repeat of ID4 aperture scan using V2-V3, also did a 8 mm chamber to understand better the apparent margin between the beam centroid and the physical aperture.(April) (Louis Emery)

• For SCU1 commissioning in May, checked SCU1 alarm limits, provided controls training to OAG physicists, determined orbit perturbation from SCU1 quenching using Arnold's and Sinisa's daq system. (Louis Emery)

• For SR start-up, found a problem with CPU canting permanent magnet, and worked around it. (Louis Emery)

• Identified several problems with injector and SR, which were worked around by other studiers and myself. (Louis Emery)

• Determined physical aperture of ID1 and ID4 straight sections. Measured ID4 local impedance, and got 75 kOhm/m, reverting to the old value. (Louis Emery)

• Installed non-symmetric sextupoles for lower chromaticity and found no advantage in using this. (Louis Emery)

• Checked efficiency versus tune, and found little dependence for normal range of tunes. This is a large improvement from last run. (Louis Emery)

• Met with MD group and ID1 SCU users on details of the machine studies with SCU with shutters open. Followed with actual study where steering optimization was done. A team of us looked at the steering difference between the upstream ID1 undulator and SCU1. (Louis Emery)

• Improved injection robustness with a scan of booster extraction kicker set points. (Louis Emery)

• Creates a request file for the SCU1 correction table. Wrote a converter from the 84 PV SCU request file to a SDDS file that can be plotted. Need to write the inverse command. (Louis Emery)

• Checked The SCU1's virtual gap PV, and discussed Marty and Hairong's idea to make a discontinuous function of current versus gap. (Louis Emery)

• Measured orbit response to SCU corrector for future orbit correction. (Louis Emery)

• Conducted SCU1 BLM calibration study with K. Harkay on Monday. (Jeff Dooling)

• On Wednesday and Thursday discussed dosimetry for abort kicker studies with J. Vacca. Agreed to delay full current studies until June 9th to allow time for Vacca to acquire dosimeters. (Jeff Dooling)

• Vacca approved firing the abort kicker with SR currents of 1 mA or less. Started abort kicker studies Thursday. (Jeff Dooling)

• Worked on post-processing of calibration data. (Jeff Dooling)

• Done with orbit recovery. (Aimin Xiao)

• Worked with Louis and Kathy on SCU1 quench orbit stability study. (Aimin Xiao)

• Generated new correction table for IEX and CPU. (Aimin Xiao)

APS Machine Research and Development

Storage Ring Research and Development

• Did multi-bunch instability multi-particle tracking for APS-U. Discovered what Landau damping means for a passive harmonic rf system plus HOM. Discussed with R. Lindberg variance reductions with Halton sequences in search of a way to reduce the (Louis Emery)

• Met with ITech engineering on beam loss monitors. (Louis Emery)

• Asked CY to look into raising booster energy by 0.3% in order to reduce potential injection losses in the SR. (Louis Emery)

• APS-U physics meeting: gave presentation on adding resistive wall impedance. (Louis Emery)

• Discussed with Xiaio circumference of APS before and after Decker distortion. (Louis Emery)

• Approved SCU1 PRD. (Louis Emery)

Linac Research and Development

• Attended linac structure straightening meeting organized by the D. Bromberek and the RF Group. (Jeff Dooling)

APS Machine Software

Storage Ring

• Passed instructions to Fystro on a direct interface of steering request (with status pages) to operators by-passing floor coordinators. (Louis Emery)

• Wrote in a technical note the way to implement a virtual gap for current-driven undulator for the purposes of using gap-driven software. Modified ioc code for M. Smith. (Louis Emery)

• helped operator with P0Feedback tuning, did sample delay scan with P0FBScan tool, did not help. Then did attenuator scan, and set both plan to 60 for attenuator, it worked and we had stable P0Feedback running. However, the attenuator post-processing for y plane was not correct, we set the value through observation during the scan, therefore improved the post-processing for attenuator scan. Installed P0FBScan and added a button called "P0Feedback TuneUp" to P0FeedbackControl to bring up the P0FBScan application for tuning P0Feedback. (Hairong Shang)

• put checking MXA waveform points back to avoid reading empty waveform to HPVSATunes.tcl. (Hairong Shang)

Injectors

• wrote boosterResponseMeasurement software and setup the configuration files for response measurements to measure the booster BSP 100 BPM response at 10 time segments and tested with CY, the software worked fine and took some data. The software includes boosterResponseMeasurement - the application GUI, SetBoosterSingleBumpAmplitude for changing the booster ramp for given corrector at given time region, setBoosterBPMTimeSeg for setting the booster bpm start time, checkAndLoadBoosterBump - a server who watches the corrector's amplitude PV changes and load the changes to booster ramp. (Hairong Shang)

• did DC-mode booster beam test with CY, wrote SetBoosterDCAmplitude for setting DC ramps at given amplitude and Booster4CorrectorDCScan for scanning booster 4 corrector bump. (Hairong Shang)

• added install best result to reference ramp to SetBootsterBumpAmplitude to be able to keep the result. (Hairong Shang)

• tested and installed LinacRFGunTuneUp for RG1 and RG2 tune up. (Hairong Shang)

• added APSMpBoosterDCRampStandardize pem for standardizing BM DC ramps, ready for test. (Hairong Shang)

• fixed the problem of APSMpBoosterPSSetDCStandbyPower pem, reactivated this pem per CY's request. And increase the DC current for BM to 60 from 30amps, others to 10amps from 5 amps. (Hairong Shang)

General

• added "how to restart logDaemon on helios and oxygen" to elog software catalog for future reference. (Hairong Shang)

IOC/EPICS/Controls/Linux/Solaris/Linux Clusters/Data Loggers/Simulation software

• Continued building EPICS 3.14.12.5 and associated libraries (Randy Flood)

• Administer the EPICS CVS repository to ensure current versions are installed and conflicts are tracked down and eliminated. (Randy Flood)

Meetings, workshops, conferences, committees, LMS related, and reviews

• Attended workshop on low-emittance ring design in Barcelona. Gave two talks on APS Upgrade in general and use of MOGA (slides provided by Borland and others.). (Louis Emery)

• Gave presentation to APS-U physics meeting on APS-U multi-bunch instability multi-particle tracking, which is the work presented at the IPAC. (Louis Emery)

• Took two training web courses. (Louis Emery)

• Met with ITech engineering on beam loss monitors. (Louis Emery)

• Attended a meeting about plans for Booster weather proofing (Randy Flood)

Education, Mentoring and outreach

• Prepared and gave a lecture in the EPICS series on how to use Tcl/Tk, SDDS with EPICS. (Louis Emery)

Miscellaneous

• Wrote a review of a DOE-BES project proposal. (Louis Emery)

• Helped people with latex for IPAC papers. (Louis Emery)

• Attended series of bi-weekly meetings on orbit stability with users, the first of which I explained steering process. (Louis Emery)

• Sent source parameter data for ID27 ID30 ID35 to T. Gog, XSD. (Louis Emery)

• Reviewed two POC_HP cases. (Louis Emery)

• Attended APS-U radiation shielding meeting to give feedback on Miklich's workshop talk. (Louis Emery)

• Attended EAS shutdown planning meeting. (Louis Emery)

• Took 2 days vacation off. (Aimin Xiao)